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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
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ART UNIT	PAPER NUMBER
1648	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/694,418	KANDIMALLA ET AL.	
	Examiner	Art Unit	
	Emily Le	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/25/06* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/09/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of a) Y is a non-natural pyrimidine nucleoside; Z) guanosine; X1-X3 are naturally occurring nucleoside, and X4 is an immunostimulatory moiety that is methylphosphonate in the reply filed on 05/15/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Status of Claims

2. Claims 1-8 and 12-38 are cancelled. Claims 9-11 are pending and under examination.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 9 is rejected under 35 U.S.C. 102(a) as being anticipated by Zhao et al.[1]

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[1] Zhao et al. Immunostimulatory Activity of CpG containing phosphorothioate oligodeoxynucleotide in modulated by modification of a single deoxynucleoside. Bioorganic and Medicinal Chemistry Letters, May 15, 2000, Vol. 10, 1051-1054.

The claim is directed to an oligonucleotide having the formula X1X2CGX3X4, wherein X1-X4 are a nucleoside each or a immunostimulatory moiety, wherein the immunostimulatory moiety for X1 is limited to one selected from a group consisting of C3-alkyl linker, 2-aminobutyl-1,3-propanediol linker and Beta-L-deoxynucleoside; for X2 is an amino linker; for X3 is a methylphosphonate; for X4 is either methylphosphonate or 2'-O-methyl-ribonucleoside; and wherein C is cytidine, 2'deoxycytidine, or a non-natural pyrimidine nucleoside, and G is guanosine, 2'deoxyguanosine or a non-natural purine nucleoside.

Zhao et al. teaches an oligonucleotide having the formula X1X2CGX3X4, wherein X1-X3 are a nucleoside each and X4 is an immunostimulatory moiety that is 2'-O-methyl-ribonucleoside, and C and G are 2'-deoxycytidine and 2'-deoxyguanosine. Zhao et al. teaches the claimed oligonucleotide. Therefore, Zhao et al. anticipates the claimed invention.

5. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Agrawal et al.[2]

Agrawal et al. teaches an oligonucleotide having the formula X1X2CGX3X4, wherein X1-X3 are a nucleoside each and X4 is an immunostimulatory moiety that is methylphosphonate, and C and G are 2'-deoxycytidine and 2'-deoxyguanosine. [Figure 2, in particular.] Agrawal et al. teaches the claimed oligonucleotide. Therefore, Agrawal et al. anticipates the claimed invention.

[2] Agrawal et al. U.S. Provisional Application No. 60/178562, which U.S. Patent No. 6815429 has priority.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al., as applied to claim 9, in view of Schwartz et al.[3]

Claim 10, which depends on claim 9, requires C to be a non-natural pyrimidine. Claim 11, which depends on claim 10, requires C to have the formula set in the claim.

The significance of Zhao et al., as applied to claim 9, is provided above. In the instant case, the oligonucleotide of Zhao et al. does not comprise a C that is a non-natural pyrimidine, including those encompassed by the formula recited in claim 11.

However, at the time the invention was made, Schwartz et al. teaches the use of non-natural pyrimidine, including those encompassed by the formula recited in claim 11 of the instant patent application. [See claims of Schwartz et al., in particular.] Schwartz et al. teaches the use of non-natural pyrimidine, including those encompassed by the formula recited in claim 11 of the instant patent application to modulate the immunostimulatory activity accorded by oligonucleotides comprising the CpG motif.

Hence, at the time the invention was made, it would have been prima facie obvious for one of ordinary skill in the art to use non-natural pyrimidine, including those encompassed by the formula recited in claim 11 in the oligonucleotide of Zhao et al.

One of ordinary skill in the art, at the time the invention was made, would have been motivated to do so to modulate the immunostimulatory activity accorded by the oligonucleotide of Zhao et al. One of ordinary skill in the art, at the time the invention was made, would have had a reasonable expectation of success for doing so because the determination of a workable or optimal immunostimulatory activity of oligonucleotides comprising CpG motif is routinely practiced in the art.

8. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal et al., as applied to claim 9, in view of Schwartz et al.

Claim 10, which depends on claim 9, requires C to be a non-natural pyrimidine. Claim 11, which depends on claim 10, requires C to have the formula set in the claim.

The significance of Agrawal et al., as applied to claim 9, is provided above. In the instant case, the oligonucleotide of Agrawal et al. does not comprise a C that is a non-natural pyrimidine, including those encompassed by the formula recited in claim 11.

However, at the time the invention was made, Schwartz et al. teaches the use of non-natural pyrimidine, including those encompassed by the formula recited in claim 11 of the instant patent application. [See claims of Schwartz et al., in particular.] Schwartz et al. teaches the use of non-natural pyrimidine, including those encompassed by the formula recited in claim 11 of the instant patent application to modulate the immunostimulatory activity accorded by oligonucleotides comprising the CpG motif.

Hence, at the time the invention was made, it would have been prima facie obvious for one of ordinary skill in the art to use non-natural pyrimidine, including those

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[3] Schwartz et al. WO 99/62923, published December 09, 1999.

encompassed by the formula recited in claim 11 in the oligonucleotide of Agrawal et al. One of ordinary skill in the art, at the time the invention was made, would have been motivated to do so to modulate the immunostimulatory activity accorded by the oligonucleotide of Agrawal et al. One of ordinary skill in the art, at the time the invention was made, would have had a reasonable expectation of success for doing so because the determination of a workable or optimal immunostimulatory activity of oligonucleotides comprising CpG motif is routinely practiced in the art.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In *re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 9-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 14 of copending Application No. 10/694383. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The claimed invention is directed to an oligonucleotide having the formula X1X2CGX3X4, wherein X1-X4 are a nucleoside each or a immunostimulatory moiety, wherein the immunostimulatory moiety for X1 is limited to one selected from a group consisting of C3-alkyl linker, 2-aminobutyl-1,3-propanediol linker and Beta-L-deoxynucleoside; for X2 is an amino linker; for X3 is a methylphosphonate; for X4 is either methylphosphonate or 2'-O-methyl-ribonucleoside; and wherein C is cytidine, 2'deoxycytidine, or a non-natural pyrimidine nucleoside, and G is guanosine, 2'deoxyguanosine or a non-natural purine nucleoside.

The invention claimed in the conflicting patent application is directed to an oligonucleotide having the formula Um....U1X1X2CGX3X4D1....Dm, wherein X1-X4,

Um....U1 and D1....Dm are a nucleoside each or a immunostimulatory moiety, wherein the immunostimulatory moiety for X1 is limited to one selected from a group consisting of C3-alkyl linker, 2-aminobutyl-1,3-propanediol linker and Beta-L-deoxynucleoside; for X2 is an amino linker; for X3 is a methylphosphonate; for X4 is either methylphosphonate or 2'-O-methyl-ribonucleoside; and wherein C is a non-natural pyrimidine nucleoside, and G is guanosine, 2'deoxyguanosine or a non-natural purine nucleoside.

The difference between the claims is: The oligonucleotide of the conflicting application further comprises Um....U1 and D1....Dm. However, it is noted that the oligonucleotide encompassed by the claims of the conflicting patent application is a species of oligonucleotides that are encompassed by the oligonucleotides being claimed in the instant patent application. In the instant case, the species of oligonucleotide being claimed in the conflicting patent application anticipates the genus of oligonucleotides instantly being claimed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claims 9-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 23 of copending Application No. 11/274043. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The invention claimed in the conflicting patent application is directed to an oligonucleotide having the formula Yn....Y1Y2CGX1X2....Xm, wherein Y1-Yn and X1-

Xm a nucleoside each or a immunostimulatory moiety, and wherein C is cytosine, and G is 7-deazaguanosine, a non-natural purine nucleoside.

The difference between the claims is: The oligonucleotide of the conflicting application further comprises Yn and Xm. However, it is noted that the oligonucleotide encompassed by the claims of the conflicting patent application is a species of oligonucleotides that are encompassed by the oligonucleotides being claimed in the instant patent application. In the instant case, the species of oligonucleotide being claimed in the conflicting patent application anticipates the genus of oligonucleotides instantly being claimed.

The other difference is that the conflicting patent application does not specifically define what is encompassed by immunostimulatory moiety. However, it is noted that the specification of the conflicting patent application teaches the use of 1,3-propanediol linker, substituted or unsubstituted as an immunomodulatory moiety.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

12. No claims are allowed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Le whose telephone number is (571) 272 0903. The examiner can normally be reached on Monday - Friday, 8 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce R. Campell can be reached on (571) 272-0974. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Emily M. Le/
Patent Examiner
Art Unit 1648

/E.Le/